

1. (Twice Amended) An emitter controlled thyristor device package having a cathode terminal and an anode terminal, comprising:

a thyristor device having a thyristor emitter, a thyristor collector, and a thyristor gate, said thyristor comprising alternating P-type and N-type semiconductor regions;

8 a first discrete metal oxide semiconductor ^(MOS)
9 transistor [(MOS)] connected in series with said
10 thyristor between said cathode terminal [and] said
thyristor emitter;

a second discrete MOS transistor connected between said cathode terminal and said thyristor gate, a gate terminal of said second MOS transistor connected to said cathode terminal; and

17 means for injecting electrons into said thyristor for triggering said thyristor into [said] a latching state;

wherein a first voltage applied to a gate terminal of said first MOS transistor causes a forward current to flow between said cathode terminal and said anode terminal turning said emitter controlled thyristor device to an on state, and a zero to second voltage applied to said gate of said first MOS transistor turns said emitter controlled thyristor device to an off state.

19. (Twice Amended) A gate turn-off (GTO) thyristor device package comprising:

a first metal plate;
a second metal plate;
a third metal plate electrically insulated from said second metal plate;
a thyristor sandwiched between said first metal plate and said second metal plate, a collector of said thyristor contacting said first metal plate acting as an anode for said GTO thyristor device package;

Cmt

a first discrete metal oxide semiconductor (MOS) transistor positioned on said second metal plate adjacent said thyristor, said first MOS transistor having a first terminal connected to an emitter of said thyristor and a second terminal connected to said third metal plate acting as a cathode for said GTO device package; and

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a second discrete MOS transistor positioned on said second metal plate adjacent said thyristor, said second MOS transistor having a first terminal connected to a gate of said thyristor, said second MOS transistor further having a second terminal and a gate terminal connected to said third metal plate,

wherein a first voltage applied to a gate terminal of said first MOS transistor turns said thyristor to an on state causing a current to flow between said cathode and said anode, and a zero to second voltage applied to said gate of said first MOS transistor turns said

29 [emitter controlled] thyristor device to an off state.

C3

Sub D

fig 17A-17D

p.21

22. (Amended) A gate turn-off (GTO) thyristor device package as recited in claim [89], wherein said first and second discrete semiconductor switches are first and second MOS transistors, respectively, and said first MOS transistor and said second MOS transistor are complementary.

23. (Amended) A gate turn-off thyristor (GTO) device package comprising:

a gate turn-off (GTO) thyristor comprising a thyristor gate, a thyristor emitter, and a thyristor collector forming an anode terminal;

8 a first plurality of discrete switching devices connected in parallel arranged in a circular fashion around said GTO thyristor, a first terminal of each of said MOS
9 transistors] connected to said thyristor emitter and a

- Cmt C3*
- 10 second terminal of, [said MOS transistors] connected to a cathode terminal of said GTO device package; and
a second plurality of discrete switching devices connected in parallel arranged in a circular fashion
- 14 around said GTO thyristor, a first terminal of, said each of
- 15 [MOS] switching devices] connected to said thyristor
- 16 gate and a second terminal of, said each of switching devices connected to said cathode terminal of said GTO device package,
- wherein a first voltage applied to a gate terminal
20 of, each of said first plurality of switching devices turns said GTO thyristor to an on state causing a current to flow between said cathode terminal and said anode terminal,
23 and a zero to second voltage applied to said gate, terminal of each of said first plurality of switching devices turns said GTO thyristor to an off state.

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25. (Twice Amended) A gate turn-off thyristor (GTO) device package as recited in claim 23 further comprising a [third] metal plate forming an anode terminal of said GTO thyristor device package.

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32. (Amended) A gate turn-off thyristor (GTO) as recited in claim 23, further wherein [said first switching devices comprise a MOS transistor] comprising:

4 a feedback path connecting [said gate terminal] of said MOS transistor to said thyristor emitter;

6 [a capacitor connected in parallel to said MOS switching device connecting said second terminal of

112 1st 7 said MOS transistor to said thyristor gate terminal].

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33. (Twice Amended) An emitter turn-off thyristor device package including
a thyristor element having an anode terminal, an emitter terminal and a gate terminal,
a first discrete semiconductor switch connected in series with said emitter terminal of said thyristor

7 [device] by a first terminal of said first semiconductor switch,

a second discrete semiconductor switch connected in series with said gate terminal of said thyristor device by a first terminal of said second discrete semiconductor switch; second terminals of said first and second discrete semiconductor switches being connected together, and

means for shorting said emitter of said thyristor element to a terminal of said first discrete

17 semiconductor switch [or] for injecting electrons into said thyristor for triggering said thyristor into a latching state;

wherein said first and second discrete semiconductor switches are arranged such that a signal 22 of a first type applied to [said first discrete 23 electronic switch] turns said emitter turn-off thyristor to an on-state and a signal of a second type applied to 25 [said first electronic switch] turns said emitter turn-off thyristor to an off-state.

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3 42. (Amended) An emitter turn-off device package as recited in claim 33, wherein one of said first and second discrete semiconductor switches includes a MOS transistor.

fig. 18
2 43. (Amended) An emitter turn-off device package as recited in claim 33, wherein one of [said first] and second discrete semiconductor switches includes a diode.

fig. 18
2 44. (Amended) An emitter turn-off device package as recited in claim 33, wherein one of [said first] and second discrete semiconductor switches includes a zener diode.